

## **Title of the Invention**

### **MANUFACTURE OF ARTICULATED, PREDOMINANTLY CONCRETE MAT**

#### **Cross-Reference to Related Application**

5           This application is a continuation-in-part of Serial No. 10/286,677, which was filed on November 1, 2002, and the disclosure of which is incorporated herein by reference.

#### **Technical Field of the Invention**

10           This invention pertains to the manufacture of an articulated, predominantly concrete mat, which comprises concrete blocks and a flexible geogrid embedded in said blocks and in which the flexible geogrid defines flexible members connecting said blocks to one another.

#### **Background of the Invention**

15           An articulated, predominantly concrete mat is disclosed in United States Patent No. 5,108,222, the disclosure of which is incorporated herein by reference. As disclosed therein, such a mat has numerous uses in retarding earth erosion due to wind, water, or both. Such a mat may be also used to line a driveway, a parking area, or an emergency roadway.

20           As disclosed in United States Patent No. 5,108,222, *supra*, the articulated, predominantly concrete mat comprises concrete and a flexible geogrid, which is embedded in said blocks, and the flexible geogrid defines flexible members connecting said blocks to one another.

#### **Summary of the Invention**

25           This invention facilitates the manufacture of an articulated, predominantly concrete mat, which comprises concrete blocks and a flexible geogrid embedded

in said blocks and in which the flexible geogrid defines flexible members connecting said blocks to one another, by providing an intermediate article being a concrete slab, in which a flexible geogrid is embedded. When this invention is considered in terms of a process, the concrete slab is cast and the flexible geogrid is embedded when the concrete slab is cast.

The slab has relatively thinner portions, along which the slab is breakable to form said blocks. The slab has relatively thicker portions, which become said blocks when the slab is broken along the relatively thinner portions. Serial No. 10/286,677, *supra*, illustrates and describes an embodiment wherein the relatively thicker portions are arranged in parallel rows and parallel columns, before the slab is broken along the relatively thinner portions.

In an alternative embodiment illustrated and described herein, the relatively thicker portions are arranged in parallel rows, in which the relatively thicker portions in adjacent rows are staggered, before the slab is broken along the relatively thinner portions. Preferably, in the alternative embodiment illustrated and described herein, the relatively thicker portions in alternate rows are aligned in parallel columns, before the slab is broken along the relatively thinner portions.

Depending upon the flexible geogrid that is used, the flexible members may be flexible straps, as disclosed in United States Patent No. 5,108,222, *supra*, or flexible strands or strand bundles.

### **Brief Description of the Drawings**

Figure 1 is a plan view of a concrete slab, in which a flexible geogrid is embedded, whereby to provide an intermediate article embodying this invention. Figure 2, on a larger scale, is a fragmentary, isometric view of an exemplary corner of the concrete slab, in which the flexible geogrid is embedded.

Figure 3, on a similar scale, is a fragmentary, isometric view, which is similar to a portion of Figure 2 but which is taken after the concrete slab has been broken along relatively thinner portions, whereby relatively thicker portions have become discrete, concrete blocks, which are connected to one another by flexible elements of the flexible geogrid, so as to provide an articulated, predominantly concrete mat. Figure 4 is an enlarged, fragmentary, cross-sectional detail, as taken along line 4—4 of Figure 3, in a direction indicated by arrows.

Figure 5 is a simplified, schematic layout of plural mats, each of which may embody this invention.

#### **Detailed Description of the Illustrated Embodiment**

In an alternative embodiment, which is illustrated in Figures 1 through 4, an intermediate article 10 in the manufacture of an articulated, predominantly concrete mat, which is similar to the articulated, predominantly concrete mat disclosed in United States Patent No. 5,108,222, *supra*, comprises a rectangular, concrete slab 20 and a flexible geogrid 30, which is embedded in the concrete slab 20, so that flexible members 32 of the flexible geogrid 30 extend longitudinally and transversely, when the concrete slab 20 is cast.

The concrete slab 20 is cast, in an inverted orientation relative to its illustrated orientation, so as to have relatively thinner portions 22 extending longitudinally and transversely and so as to have relatively thicker portions 24, which are separated from one another by the relatively thinner portions 22. As illustrated and described herein, the relatively thicker portions 24 are arranged in parallel rows, which extend from left to right in Figure 1 and in which the relatively thicker portions 24 in adjacent rows are staggered, before the slab 20 is broken along the relatively thinner portions 22. Moreover, the relatively thicker

portions 24 in alternate rows are aligned in parallel columns, which extend from top to bottom in Figure 1, before the slab 20 is broken along the relatively thinner portions.

Many flexible geogrids available commercially are suitable for the flexible geogrid 30. Depending upon the flexible geogrid 30 that is used, the flexible members 32 may be flexible straps, as disclosed in United States Patent No. 5,108,222, *supra*, or flexible strands or strand bundles, as illustrated schematically herein.

As illustrated in Figures 3 and 4, the concrete slab 20 is breakable along the relatively thinner portions 22, so that the relatively thicker portions 24 become discrete, concrete blocks 40 connected to one another by flexible members 32 of the flexible geogrid 30, which remains embedded in the respective blocks 40, whereby an articulated, predominantly concrete mat 50 is provided.

So as to facilitate breaking of the concrete slab 20 along the relatively thinner portions 22, the concrete slab 20 has spaced holes 26 having circular mouths, along the relatively thinner portions 22. The relatively thinner portions 22 may be sufficiently thin to enable the concrete slab 20 to be thus broken by its own weight if and when the concrete slab 20 is lifted from its edges.

Alternatively, the concrete slab 20 may be thus broken by a person wielding a suitable tool, such as an adze.

As exemplary dimensions, all of which are approximate, the concrete slab 20 may have a width of twenty-four inches and a length of forty-eight inches, the relatively thinner portions 22 may have a thickness of three-eighths inch, the relatively thicker portions 24 may have a thickness of one inch, the flexible

geogrid 30 may have two inch square openings, which are defined by the flexible members 32, and the respective blocks 40 may be four inches square.